

Laparoscopic Intragastric Removal of Giant Trichobezoar

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ABSTRACT

Background and Objectives: Gastric bezoars are a rare clinical entity, most commonly observed in patients with mental or emotional illness. Large bezoars can be difficult to remove laparoscopically without extending a port incision.

Methods: We report the case of a large symptomatic trichobezoar with Rapunzel syndrome that occurred in a 17-year-old girl who had trichotillomania.

Results: The bezoar was removed laparoscopically, in piecemeal fashion, through a gastrotomy port. This procedure did not require an extension of any incision, nor did it require the contents of the stomach to directly touch the incision, thereby reducing the risk of infection. The patient was discharged home, on the fourth postoperative day, free of any complications.

Conclusion: This case illustrates the safety of the laparoscopic approach in the removal of large gastric bezoars. In considering use of this approach, the potentially long operative time must be weighed against the benefits of both minimal risk of infection and minimal incisions.

Key Words: Trichobezoar, Gastric outlet obstruction, Rapunzel syndrome, Trichotillomania.

INTRODUCTION

Trichobezoars are a rarely encountered late complication of trichotillomania, a disease characterized by the uncontrollable urge to pull out one's hair. Occasionally, patients with this disease also have trichophagia, resulting in hair accumulation within the stomach and intestine. They can present with abdominal pain, loss of appetite, weight loss, and vomiting. After long periods of time, these patients can present with trichobezoar-induced bowel or gastric outlet obstruction. In the present report, we describe the case of a large gastric trichobezoar that was successfully removed laparoscopically and review the findings that led to this course of treatment.

CASE REPORT

A 17-year-old girl presented with a sharp, epigastric pain. She said she had the pain for 3 weeks, and that it had gotten especially worse during the 5 days prior to admission. The patient denied any nausea, vomiting, or hematemesis. She also denied fever, chills, or any sick contacts. She said that she had been having normal bowel movements. However, she had noticed a decreased frequency over the past 3 weeks. She also complained of decreased appetite with weight loss of approximately 10 pounds during this time. Review of systems was otherwise unremarkable. Her past medical history was only remarkable for migraines, for which she took sumatriptan as needed. Her surgical history included a distal pancreatectomy in 2000 after a bicycle accident. She denied any psychiatric history and had no known history of mental illness.

On physical examination, she did not demonstrate obvious hair loss. Her abdomen was mildly tender in the epigastric region with more pain in the left upper quadrant than the right. She also displayed mild guarding in the left upper quadrant. Laboratory values were all within normal limits. Abdominal computed tomography (CT) revealed heterogeneous material in the lumen of the stomach, suspicious for a bezoar, measuring over 10cm within the lumen (**Figures 1 and 2**). An ultrasound revealed gastric outlet obstruction caused by a large echogenic mass.

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DOI: 10.4293/108680810X12785289144520

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Figure 1. Axial computed tomography demonstrating bezoar obstructing entire lumen of stomach.



Figure 2. Axial computed tomography demonstrating gastric bezoar in lumen of stomach with extension to duodenum.

The patient was first brought to the operating room for an upper endoscopy, where the bezoar was visualized. The mass extended to the pylorus with possible obstruction of the gastric outlet. Over a 6-hour period, <10% of the bezoar was removed. Pediatric surgery was then consulted. The patient returned to the operating room on the second day of admission. Three laparoscopic ports were created: 5mm (umbilical), 5mm (left lower quadrant), and 12mm (left upper quadrant). The adhesions between the

stomach and peritoneum were lysed, and 2 stay sutures were applied to the stomach through the greater curvature. A gastrotomy was then performed by inserting a blunt trocar into the stomach, inflating a gastric balloon, and pulling the balloon against the stomach wall, creating a 10-mm intra gastric port (Blunt Tip Trocar, United States Surgical, Tyco, Norwalk, Connecticut (**Figure 3**)). Carbon dioxide was then pumped into the stomach to create 4mm Hg pressure. Dark hair was found in the stomach in many clumps (**Figure 4**). Using the working scope, the hair was removed in pieces (**Figure 5**). The duodenum was then entered, demonstrating Rapunzel syndrome. After complete removal of the bezoar, the gastrotomy was closed with an endostapling device. Total operation time was approximately 6 hours.

Postoperatively, the patient was placed on a nasogastric tube and fed nothing by mouth. On the fourth postoperative day, the patient tolerated a regular diet and was discharged home. The patient's postoperative course was free of complications. An inpatient psychiatric evaluation revealed only a guarded and hesitant patient who denied any hair eating. She admitted only to hair-biting, nail-biting, and some insomnia. She admitted to seeing a psychologist 1 to 2 times per week over the last 2 years. It was recommended that she see an outpatient clinician on an intensive basis, and subsequently she was diagnosed with nonspecific anxiety disorder "NOS."

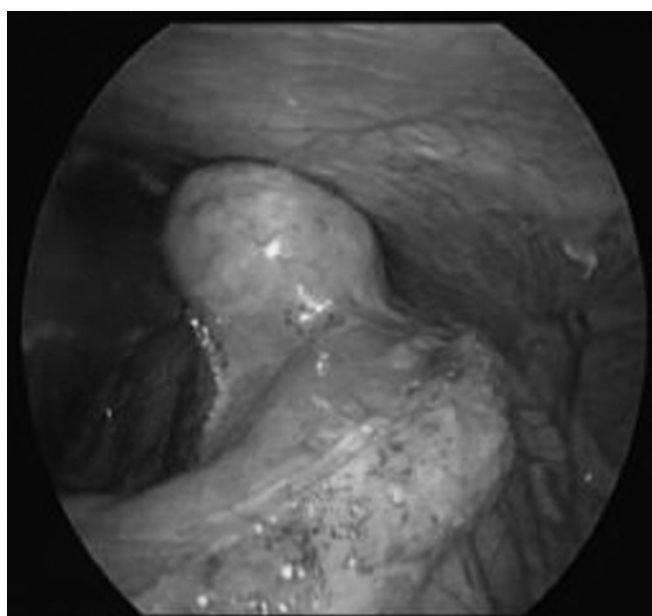


Figure 3. Intraoperative photograph demonstrating gastrotomy with stomach apposed to abdominal wall.

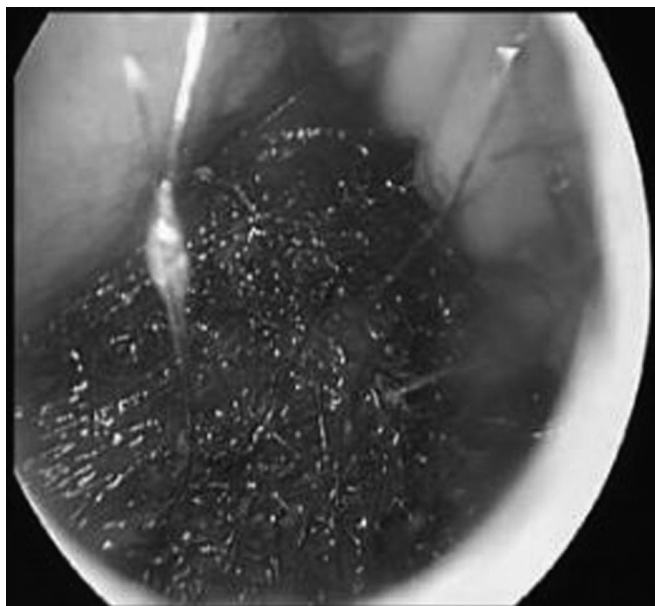


Figure 4. Intraoperative photograph demonstrating trichobezoar in lumen of stomach.

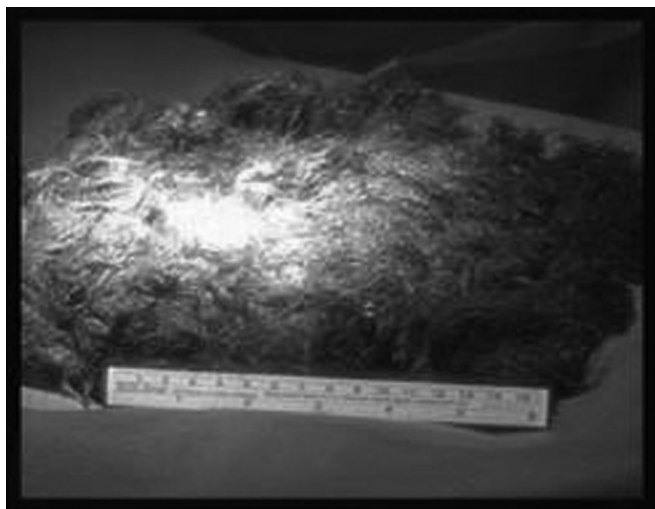


Figure 5. Total gastric trichobezoar removed. Ruler shown is 15 cm.

DISCUSSION

Trichobezoars are most commonly associated with trichotillomania. In this psychiatric disorder, patients recurrently pull out their own hair. The patients experience an increasing sense of tension immediately before pulling out the hair or when attempting to resist the behavior. The feeling of tension is followed by a sense of gratification after pulling out the hair. This behavior cannot be ac-

counted for by another disorder, and causes significant impairment.¹ Trichotillomania affects about 1% of the population. One third of these patients have trichophagia, and 1% of these patients eat enough hair to require surgery.² The first reported case of trichobezoar was described by Baudamant in 1779,³ and the first successful surgical removal was performed by Schonborn in 1885.⁴

The clinical presentation of a trichobezoar is usually that of a gastric outlet or bowel obstruction, although most are found in the stomach. Patients experience epigastric pain, nausea, vomiting, and loss of appetite. Obstruction can result if the mass is allowed to enlarge. Uncommonly, Rapunzel syndrome can occur in which a tail of hair extends from the stomach to the small intestine, or from the small intestine in the colon.⁵ Past accepted treatment modalities have included observation, dissolution, fragmentation, or surgery. The surgical approach could either be laparoscopic or open.

In a retrospective study conducted by Yau et al,⁶ the laparoscopic approach was shown to have better postoperative outcomes. The authors took all patients with bezoar-induced small bowel obstruction and divided them based on either open or laparoscopic surgery. The patients treated laparoscopically had fewer complications, shorter hospital stays, and shorter times for return of bowel function. Therefore, if possible, the laparoscopic approach should be pursued.

Several authors have described a laparoscopic approach. Nirasawa et al⁷ described using an 8-cm laparoscopic gastric incision, placing the bezoar in a plastic bag, and then removing it through a suprapubic minilaparotomy. However, the authors acknowledged that hair and gastric juice were spilled and retrieved. This method poses 2 risks. First, spillage of the bag contents could lead to an intraabdominal infection; and second, the incision itself could be contaminated, leading to wound infection. In addition, an 8-cm incision is a sizeable incision within the gastric wall.

Kanetaka et al⁸ used a 2-channel laparoscopic approach, in which a gastric incision of 1cm was made, and the bezoar was then fragmented using laparoscopic scissors. The fragments were then retrieved using gastroscopy. As Song et al⁹ pointed out, it is difficult to fragment the bezoar with laparoscopic scissors. Setting up gastroscopy in the same operating room also poses a logistical challenge.

Shami et al¹⁰ described making 3 laparoscopic ports followed by a longitudinal anterior gastrotomy. The bezoar

was then placed in a tissue retrieval bag. The bag was brought to the exterior through a 4-cm extension of one of the ports. The bezoar was fragmented within the bag, and retrieved in piecemeal fashion. The abdominal cavity was then washed out. Song et al⁹ described a similar approach in which a gastric incision was made laparoscopically. The bezoar was then placed in a laparoscopic retrieval Endo-bag. The opening of the bag was then externalized so the bezoar could be fragmented within the bag. Once fragmented, the bezoar was then extracted within the bag through the incision.

Both of these techniques attempt to minimize the possibility for contamination of the field by gastric contents. However, as described in Shami's case, wound infections can still occur. Although the contact is minimized, there is still a risk of gastric spillage and contamination. Moreover, with respect to all of these approaches, the efficacy is limited by the size of the bezoar. We surmise that it would be difficult to manipulate a large bezoar into a bag and then fragment it.

CONCLUSION

Our approach involved a completely laparoscopic resection and removal of the bezoar, without exposing the abdominal cavity to the stomach contents. By securing the stomach to the abdominal wall, then creating an intragastric port, the risk for contamination was minimized. However, this approach too is limited by size. Since the bezoar was so large, and only piecemeal removal was possible, operating time was long. In choosing an approach, the anesthesia time and the patient's ability to tolerate it, in addition to possible surgeon fatigue, must be weighed against the benefits of both minimal risk of infection and minimal incisions in the abdomen and stomach.

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